

NewsRelease

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SHUTTLE TO GO UP APRIL 24

Atlantis cockpit redesigned thanks to Langley technology

The Space Shuttle Atlantis is now easier and safer to fly because of "glass cockpit" technology pioneered at the NASA Langley Research Center in Hampton, Va.

Next week's flight is the first for Atlantis since it underwent more than 100 modifications and improvements, "making it the most up-to-date Shuttle ever," according to Space Shuttle Program Manager Ron Dittmore. Eleven full-color flat panel screens have replaced dozens of outdated electromechanical cockpit dials, instruments and gauges. The cost of the new Multifunction Electronic Display System, including design and development, was \$9 million.

The Shuttle Program came to Langley when NASA astronaut Fred Gregory learned Atlantis would be the first orbiter to get a total technology makeover. He advised managers to talk to NASA's aeronautics experts because of their work on large, colorful computer displays for aircraft.

Gregory, originally from Langley and now NASA Associate Administrator for Safety and Mission Assurance, knew researchers in Hampton had developed the "glass cockpit" concept in simulators and on demonstration flights in a NASA 737 research aircraft. Following NASA's years of work, aviation manufacturers started including the technology in production aircraft.

"We were happy that someone like Fred had recognized what we had done and the benefit not only to airplanes, but to spacecraft, so we were extremely proud," says Langley's Sam Morello. Morello led much of the work in glass cockpit development. "With electronic displays we can create a better understanding of what's going on in the airplane. The space shuttle has to take off and it has to land. On the return to Earth shuttle pilots are flying it just like an airplane."

"Glass cockpit" technology allows pilots to better understand and integrate vital aviation information. Liquid crystal displays can show maps and obstacles, such as terrain, and also provide easy-to-read, graphical status updates of key flight indicators and systems. Shuttle officials also say the new system reduces the high cost of maintaining obsolete instruments, provides greater backup capability, weighs less and uses less power than the original cockpit design.

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During STS-101 Atlantis will dock with the International Space Station and the seven member crew will unload more than a ton of cargo. They will also perform several maintenance tasks on board to keep the station in good condition as its orbital assembly continues later this year. The crew also will conduct one spacewalk to do work on the station's exterior.

Atlantis plans to spend almost six days docked with the station before returning to Earth with a landing planned at Kennedy Space Center May 4.

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Media note: Interviews, photographs and video of the new shuttle cockpit and Langley's contributions to its development are available.